# San Felipe Valley Groundwater Basin

- Groundwater Basin Number: 7-27
- County: San Diego
- Surface Area: 2,340 acres (3.7 square miles)

## Basin Boundaries and Hydrology

This groundwater basin underlies San Felipe, Earthquake, Blair, and Little Blair Valleys in eastern central San Diego County. Elevation of the valley floor ranges from about 3,000 feet to about 2,400 feet above sea level. The basin is bounded by nonwater-bearing rocks of the Grapevine and Pinyon Mountains on the north, of the Granite Mountains on the south, of the Volcan Mountains on the northwest, and of the Vallecito Mountains on the southeast. Elevation of the surrounding mountains ranges from about 4,000 to 5,700 feet (Rogers 1965).

Annual average precipitation ranges from about 12 to 18 inches. San Felipe Valley is drained mostly by San Felipe and Banner Creeks, which join drainage from Earthquake Valley and flow through Sentenac Canyon to the Yaqui Well Area. Blair and Little Blair Valleys are partially enclosed, and some water ponds on a small playa in each valley (Brown 1923; Rogers 1965).

## Hydrogeologic Information

### *Water Bearing Formations*

Groundwater is found in unconsolidated younger Quaternary alluvial deposits and the underlying unconsolidated to semi-consolidated older Tertiary to Quaternary alluvial deposits. Maximum depth of the valley fill is estimated to be about 200 feet (DWR 1975).

### *Restrictive Structures*

A bedrock barrier impedes the northwestward movement of groundwater from the southeastern part of the basin.

### *Recharge and Discharge Areas*

Recharge of the northwestern portion of the basin is largely from the infiltration of runoff in San Felipe and Banner Creeks. Additional recharge of the basin is from the percolation of precipitation that falls on the valley floor and the infiltration of runoff through course-grained alluvial deposits at the base of the surrounding mountains. Some groundwater discharges as under flow to Sentenac Canyon and some is lost through evaporation at a small playa at the lower end of the valley (Brown 1923, DWR 1954).

### *Groundwater Level Trends*

Groundwater level data are available for two wells from about 1957 through 1971. In the northwest half of the basin, water levels declined by about 21 feet during that time, and depth to water ranged from about 22 to 45 feet below the surface. Beneath the central part of the valley, groundwater levels declined by about 30 feet from 1958 through 1971, and depths to water

ranged from about 54 to 88 feet below the ground surface. Groundwater in the basin moves southeastward from the north, and northwestward from the south, toward Sentenac Cienaga.

### *Groundwater Storage*

**Groundwater Storage Capacity.** Unknown (DWR 1975).

**Groundwater in Storage.** Unknown.

### *Groundwater Budget (C)*

Groundwater budget information is not available.

### *Groundwater Quality*

**Characterization.** The character of the groundwater is generally sodium bicarbonate or sodium-calciun bicarbonate.

**Impairments** In general, mineral analyses of the groundwater show the quality of the groundwater is suitable for most domestic and irrigation purposes, with TDS levels averaging about 750 mg/L.

## Well Characteristics

| | | |
|---|---|---|
| | **Well yields (gal/min)** | |
| Municipal/Irrigation | Range: to 500 gal/min | Average: 30 gal/min (DWR 1975). |
| | **Total depths (ft)** | |
| Domestic | Range: | Average: |
| Municipal/Irrigation | Range: | Average: |

## Active Monitoring Data

| Agency | Parameter | Number of wells /measurement frequency |
|---|---|---|
| | Groundwater levels | |
| | Miscellaneous water quality | |
| Department of Health Services and cooperators | Title 22 water quality | 1 |

## Basin Management

Groundwater management:

Water agencies

Public

Private

## References Cited

Brown, J.S., 1923. *The Salton Sea Region, California*. U. S. Geological Survey Water-Supply Paper 497. 292 p.

California Department of Public Works. 1954. *Ground Water Occurrence and Quality, Colorado River Basin Region.* Water Quality Investigations Report No. 4. 59 p.

_____. 1975. *California's Groundwater*. Bulletin No. 118. 135 p.

Rogers, T. H. 1965. *Geologic Map of California: Santa Ana Sheet.* Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1: 250,000.

## Additional References